REMARKS

This Amendment responds to the Office Action mailed on March 16, 2004.

Claims 1-4, 7-22 and 25 are pending in this application.

No new matter is added by the amendments to claims 1 and 25. The added language specifies that the only active ingredient present in the formulation is Dapsone. This specification follows the Summary of the Invention at pages 3 and 4 of the application. Other inert ingredients such as thickeners, water, solvent, antioxidants and the like as described on pages 6-8 may be included as indicated by the "comprising" language. However, the only ingredient present for treating "black-heads", otherwise known as non-inflammatory acne, is Dapsone.

§102 Rejection of the Claims

The Examiner has rejected claims 1-7, 13, 14, 20, 21 and 23-26 under 35 USC § 102(b) as being anticipated by U.S. Patent No. 6,060,085 or U.S. 5,863,560, both patents to Osborne ('085 and '560 patents). The Examiner states that both of these patents disclose topical compositions of Dapsone for treatment of acne. The Examiner asserts that "accordingly, the ability to treat inflammatory and non-inflammatory acne is inherent to the composition of both references." The Examiner apparently bases her inherency argument upon the indication that one would "prevent non-inflammatory acne lesions from becoming inflammatory acne" by treating with an anti-microbial composition.

Applicant understands the Examiner's position but respectfully replies that this position does not consider the fundamental differences among the various forms of acne. Applicant submits an explanatory Declaration under Rule 132 of Robert Lathrop to provide scientific evidence regarding the nature of acne and how a physician would treat the differing forms of acne. Applicant respectfully submits that once the nature of acne and its treatment regimens are understood, the Examiner will conclude that the Osborne references do not inherently anticipate Applicant's claimed method.

Applicant claims a new method of treatment using a known composition. Applicant has found that an anti-microbial, topical composition known for use in treatment of inflammatory

infections such as that occurring with inflammatory acne is also useful for treatment of non-inflammatory acne or acne that does not involve an infection by *P. acnes*.

Kinds of Acne and Treatment

As Robert Lathrop explains in his attached 132 Declaration, there are two kinds of acne. The first is non-inflammatory and does not involve infection by *P. acnes*. The second is inflammatory and constitutes infection by *P. acnes*. The first kind of acne is familiar to most persons as "black-heads". As Mr. Lathrop explains, "black-heads" do not invariably lead to inflammatory acne. In some situations, a person may have only "black-heads". In other situations, a person may have both.

According to Mr. Lathrop, "black-heads" , such as those that often appear on the nose, simply are black spots on the skin, do not involve reddened skin, do not involve skin eruptions and do not contain pus or serous fluid. Also, and importantly for this discussion, they most often do not become infected. As Mr. Lathrop explains, those persons who have had "black-heads" know that such black-heads often just reside as such and do not become infected.

In contrast, the second kind of acne constitutes a significant dermal infection of *P. acnes*. Inflammatory acne is signified by infected pores, reddened skin surrounding the pores, skin eruptions, swelling around the infected pores, pus and serous fluid. In short, inflammatory acne is an infection of the skin. There is a mast cell and histamine response causing the skin reddening, swelling and eruption. There is an invasion of immune cells to combat the growing colony of microbes (*P. acnes*). This invasion results in the formation of pus and serous fluid in the dermis. Most persons are very familiar with this kind of acne and know that it is painful, unsitely and can lead to significant skin damage.

Treatment of these two kinds of acne differs significantly as Mr. Lathrop explains. For "black-heads", the treatment involves use of dissolving agents such as soap and water or alcohol. However, since there is no infection, anti-microbial agents are not used. In fact, the use of significant anti-microbial agents such as penicillin or tetracycline would require a prescription from a registered physician. But, physicians do NOT prescribe such agents for treatment of "black-heads". Physicians understand that because there is no microbial infection, anti-microbials are counter-indicated. Physicians do not prescribe anti-microbials unless there is a

demonstrated presence of a microbial infection. Indiscriminate use of antimicrobials is regarded by the FDA as one cause of "super-microbes" that are resistant to antimicrobial agents.

In contrast, as Mr. Lathrop explains, systemic and topical antimicrobial agents are prescribed by physicians for treatment of inflammatory, infected acne. Agents such as penicillin, tetracycline, cephalosporin and erythromycin are some of the anti-microbials useful under prescription for such treatment. The goal is to kill the *P. acnes* colony that has begun to grow in the dermis. A person suffering from acne would not be able to use these anti-microbial agents indiscriminately. They would only be available for his use through a physician's prescription for treatment of inflammatory acne.

Erroneous Evaluation

The Examiner has erroneously concluded that the presently claimed method involves "preventing non-inflammatory acne lesions from becoming inflammatory acne." To the contrary, the presently claimed method involves treatment and elimination of "black-heads" (i.e., non-inflammatory acne) even though the "black-heads" do not become inflammatory acne. Traditional treatment of "black-heads" has involved washing with soap and water, and use of dissolving agents to loosen and remove the "black-head" plug within the pore. Sometimes removal is also accomplished by simple pressure. Under these circumstances, no inflammation is present and no inflammation results. The pore is cleared of the plug. One would not use an anti-microbial agent to remove the plug because one would not expect an anti-microbial agent to be able to dissolve the plug, or otherwise loosen the plug. Anti-microbial agents do not have solvating or emulsifying ability and are not present in skin treatment lotions, cremes or ointments in an amount that would enable solvation or emulsification. They typically are present at concentrations of one-hundredths percent by weight, i.e., very small concentrations.

The Cited Art

As the Examiner recognizes, the Osborne patents do not disclose that Dapsone can be used to treat "black-heads". The Osborne patents indicate that Dapsone is an anti-microbial agent having anti-inflammatory properties (col 3, lines 9-11; col. 4, line 66-col. 5, line 1, USP 5863560). The Osborne patents focus upon the anti-inflammatory and anti-microbial properties

of Dapsone for treatment of acne (col. 7, line 65-col. 8, line 9, USP 5863560). Dapsone is an anti-leprosy drug that requires frequent blood counts and laboratory monitoring. See the attached product insert for Jacobus Pharmaceutical Dapsone. Its formulations would only be available by prescription, not over the counter. Thus, a physician reading the Osborne patent description would understand that the kind of acne being treated is inflammatory acne caused by a microbial infection. Moreover, that person of skill would know that other remedies, not anti-microbials, are useful for treatment of "black-heads".

For these reasons, Applicant respectfully submits that the Osborne patents do not explicitly teach use of Dapsone to treat "black-heads". Such treatment calls for plug loosening through solubilizing and emulsifying agents such as soap. One of skill would know that use of an anti-microbial for such treatment is contra-indicated.

Inherency

To reach the position that the Osborne patents teach treatment of non-inflammatory acne using an antibiotic, the Examiner has resorted to inherency. The Examiner asserts that Osborne teaches use of Dapsone to treat inflammatory acne and uses inherency based upon the Osborne disclosure to wrap-in treatment of non-inflammatory acne by Dapsone. The Examiner argues that it is inherent to use a Dapsone formulation of Osborne to prevent non-inflammatory acne lesions from becoming inflammatory lesions. Thus, the Examiner apparently is arguing one would use the Osborne Dapsone formulations in a preventative way to avoid the occurrence of inflammatory acne.

First of all, Applicant replies that this argument does not show that use of a Dapsone formulation will clear up non-inflammatory acne. The Examiner's argument is only that inflammatory acne might be prevented, not that non-inflammatory acne will be cured. For this reason, even if the inherency asserted by the Examiner were true, it would not be anticipatory of, or render obvious, the claimed method. The claimed method is treatment of non-inflammatory acne to cure it. The claimed method is not directed to the prevention of the transition of non-inflammatory acne to inflammatory acne that occasionally occurs.

Nevertheless, it is also not inherent in the use of Dapsone to treat inflammatory acne that it would necessarily also treat non-inflammatory acne to cure it. The rules for inherency require

that the result must necessarily flow from the prior art disclosure and be recognized by those of skill in the art. As the M.P.E.P. provides, "[i]nherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.", M.P.E.P. at §2163.07(a) citing *In re Robertson,* 49 U.S.P.Q.2d 1949 (Fed. Cir. 1999). "Consistent with the law of inherent anticipation, an inherent property must necessarily be present in the invention described by the [prior art], and it must be so recognized by persons of ordinary skill in the art. *Hitzman v. Rutter,* 58 U.S.P.Q.2d 1161 (Fed. Cir. 2001) citing *Continental Can Co. v. Monsanto Co..,* 20 U.S.P.Q.2d 1746 (Fed. Cir. 1991).

None of these requirements is met by the cited prior art in the present situation. First of all, Dapsone is a prescription-only pharmaceutical commonly prescribed for systemic treatment of leprosy. Its topical use to treat inflammatory acne was sought by the assignee of the Osborne patents and was approved by the U.S. Food and Drug Administration only in 2004. Thus, topical Dapsone treatment of any kind of acne was not approved and was non-existent at the time of filing of the present application. Consequently, before 2004, there could not have been any inherent result that Dapsone could also treat non-inflammatory acne. It was not available for use in the treatment of acne at all.

Second, one of skill would not recognize that Dapsone, an antibiotic like tetracycline or penicillin, would be useful for treatment of non-inflammatory acne. As Mr. Lathrop explains, antibiotics are used to treat inflammatory acne but are generally recognized to have no effect on "black-heads". Reading the Osborne patents, one of skill would understand that Dapsone is an antibiotic and would put it into the class of acne medicines including tetracycline and penicillin. One of skill would reach the same conclusion about Dapsone that is provided by the literature about use of antibiotics to treat acne. Antibiotics treat inflammatory acne but not non-inflammatory acne.

Third, if one were to apply a Dapsone formulation to his face to treat his inflammatory acne, it is not a necessary result that his non-inflammatory acne would also be treated. Most persons have had inflammatory acne as teenagers. To treat such acne, one did not smear the lotion or ointment all over one's face. Instead, one applied the lotion or ointment to the inflamed regions only. Accordingly, when applying a Dapsone formulation as described by the Osborne patents, one would follow the physician's prescription and apply the formulation to those

inflamed regions. This mode of treatment would not include regions of skin containing only "blackheads". Consequently, the necessary result that "black-heads" would invariably be treated would not occur.

Finally, there is the distinction between non-inflammatory acne and inflammatory acne as discussed above. The former often occurs without the presence of the latter. Because Dapsone is a prescribed anti-microbial, it would not be used in this former situation. In other words, a person having only "black-heads" would not use an antibiotic formulation designated for treatment of inflammatory acne. Thus, the treatment of non-inflammatory acne is not inherent in the use of Dapsone. Such an inherent use would necessarily require that the patient suffering only from "black-heads" would use a Dapsone formulation. This use, however, would not happen. Such a person would not be able to obtain a prescription for a Dapsone formulation as explained by Mr. Lathrop. Moreover, if a person suffering from acne happened to have a topical Dapsone prescription on hand, he would follow the physician's instructions and use it on his inflammatory acne lesions but not on his "black-heads". Hence, it is not inherent in the use of topical Dapsone to treat inflammatory acne that one of skill would recognize that non-inflammatory acne will necessarily also be treated.

Unexpected Results

As Mr. Lathrop explains, Applicant has surprisingly found that use of a 1% Dapsone formulation successfully reduces "black-head" numbers for patients suffering from this skin problem. This result is surprising because anti-microbial agents are not used for such treatment. Moreover, the typical kind of treatment for "black-heads" utilizes large quantities of solubilizing and emulsifying agents such as soap and water and scrubbing. In view of this typical treatment, it would not be expected that a small concentration of Dapsone, such as 1%, would also be effective to treat "black-heads."

Withdrawal of Rejection

For these reasons, Applicant respectfully submits that his pending claims are not anticipated by the Osborne patents. Applicant respectfully requests that this rejection be withdrawn.

§103 Rejection of the Claims

The Examiner has also rejected claims 1-26 under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 6,200,964 to Singleton et al. ('964) in view of Osborne ('085 or '560). The Examiner asserts that Singleton describes a salicylic acid – silicone formulation for treatment of acne wherein Dapsone is one of a countless list of agents for treatment of herpes, skin cancer, wounds, inflammation, aging, chickenpox, pain, irritation and the like. The Examiner asserts that Osborne provides a disclosure that Dapsone would be useful for treatment of acne.

Applicant responds that his claims, as amended, overcome this rejection. First of all, for the reasons given above, neither Osborne nor the combination of Osborne and Singleton suggests that the use of a small concentration of the antimicrobial agent, Dapsone, would be effective for treatment of "black-heads." Instead, the opposite is true: antibiotics would not be prescribed and are known to be ineffective for treatment of such non-inflammatory acne.

Second, the combination of Singleton and Osborne allegedly provides a silicone formulation of salicylic acid and Dapsone. This combination does not suggest a formulation of Dapsone alone as the active agent for treatment of non-inflammatory acne. Indeed, Singleton describes a dual function for salicylic acid: one that those of skill in the art will recognize as a treatment for non-inflammatory acne and also for inflammatory, infectious acne. Singleton states that "salicylic acid is a known keratolytic agent that has the ability to both penetrate and dissolve cometones as well as kill bacteria." ('963 patent, next to last paragraph of "Background"). The cometones are the plugs discussed above. Penetration and dissolution are the modes of action useful for treatment of "black-heads". Killing bacteria is the mode of action useful for treatment of inflammatory acne. Thus, Singleton recognizes that there are two distinct kinds of acne and two different kinds of treatment are needed for these kinds of acne.

As discussed above, one of skill would not expect a known anti-microbial agent such as Dapsone to be effective for "black-head" treatment. Singleton does not indicate, for example, that any of the anti-microbial agents he lists are useful for penetration and dissolution of cometones. In fact, based upon Singleton, one would conclude that an agent such as salicylic acid would be necessary for such treatment. Therefore, the combination of Singleton and Osborne leads away from Applicant's method claims.

For these reasons, Applicant submits that the combination of Singleton and Osborne does not suggest the present claims, as amended. Applicant respectfully requests that this rejection be withdrawn.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 373-6939 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 24th day of November, 2004.

PATRICIA A. HULTMAN

Name

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